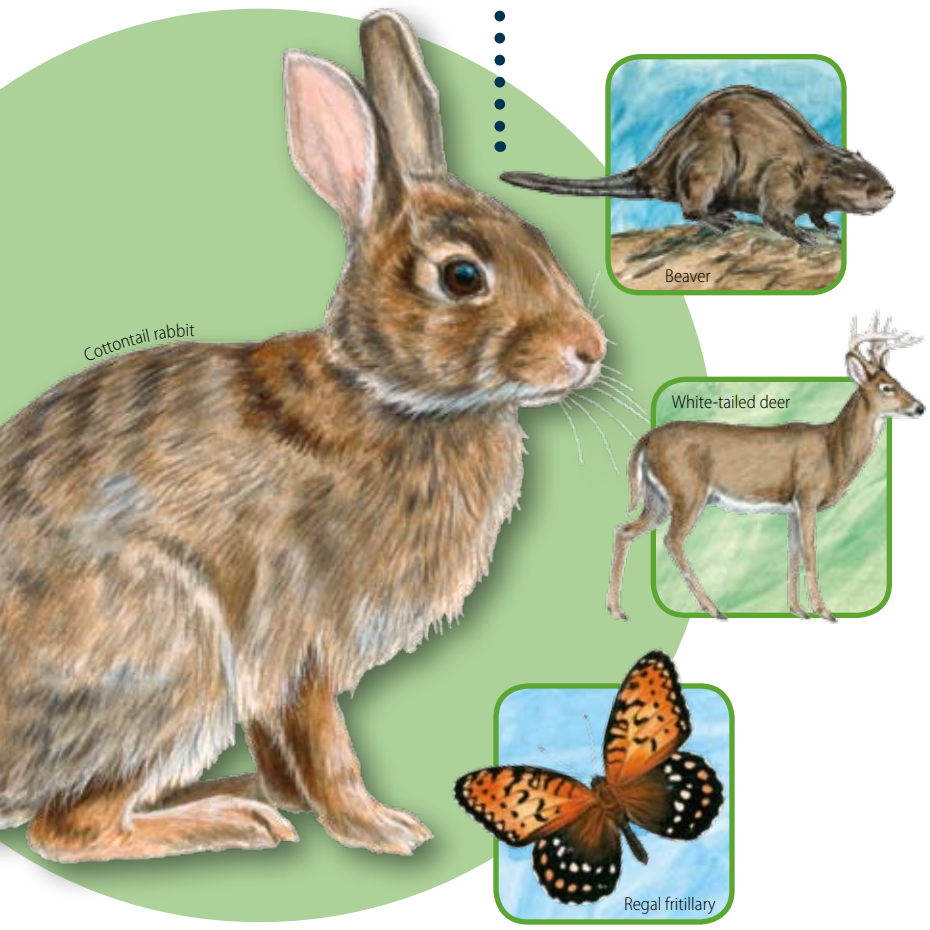
5 you eat what?!

In food chains, energy from the sun is used by producers to make their own food. Producers are the first organisms eaten, and the first organisms to pass energy up through a food chain. Energy continues to be passed along a food chain when consumers eat producers and other consumers. This chapter shows the three types of consumers, what they eat and how to tell what they eat by their teeth. You also will learn about scavengers and decomposers, organisms that act as an ecosystem's clean-up crew.



herbivores

All animals are consumers, but not all consumers consume or eat the same foods. Animals that eat only plants are called **herbivores**.

Water fleas, snails, tadpoles and beavers are herbivores found in pond ecosystems. They get all the energy they need by eating algae and other plants that are growing in, around and under water.

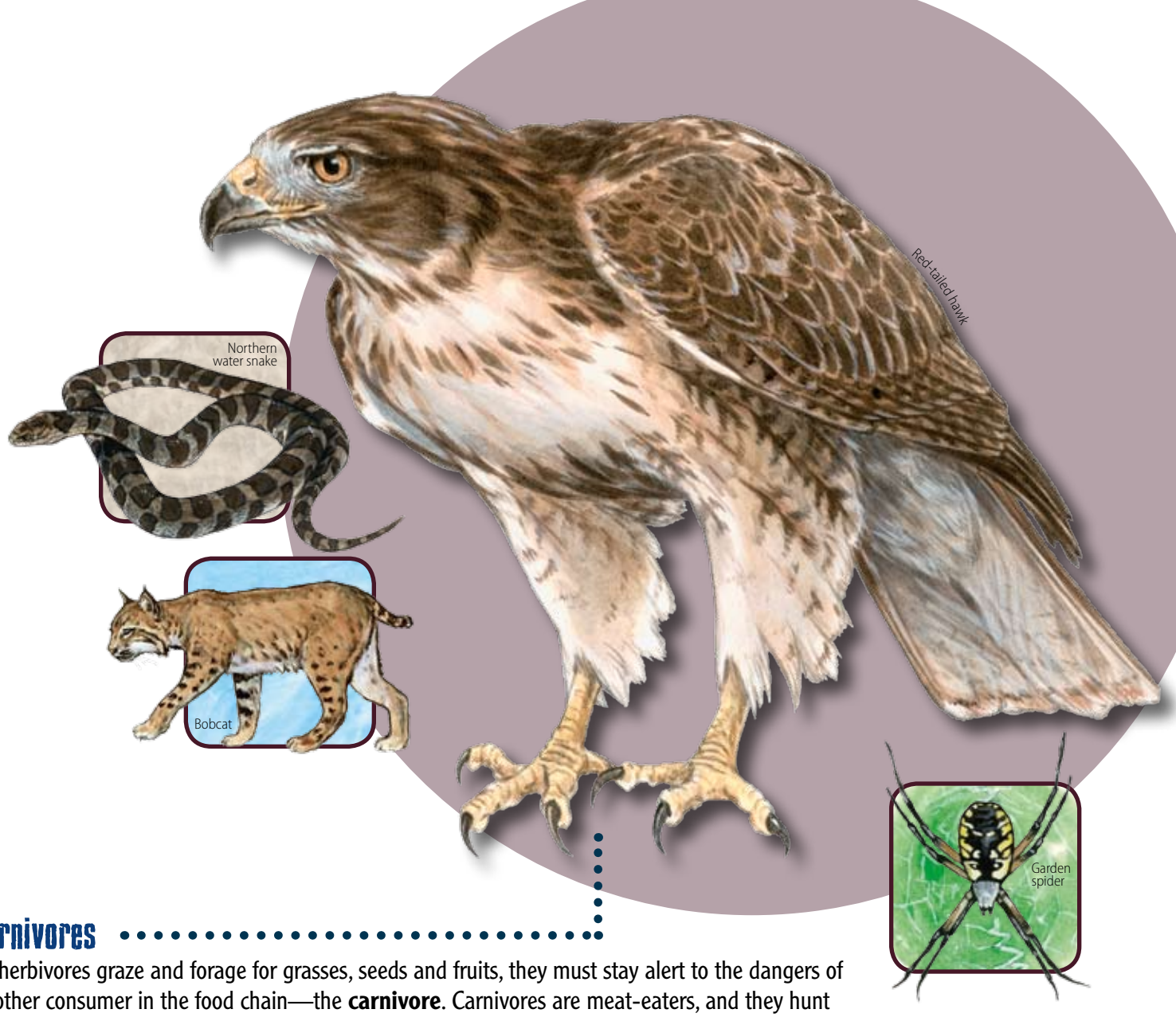
Spicebush swallowtail caterpillars are forest herbivores that feed on spicebush and sassafras leaves. As adult butterflies, they will seek out forest flowers for nectar. Fox squirrels and white-tailed deer are forest herbivores that forage for nuts, seeds and fruits. Tiny woodland voles live in tunnels under the forest soil and eat plants, berries and seeds they find underground.

Prairie grasses and forbs are food for many herbivores. Rabbits and gophers eat roots, stems, leaves, small fruits and seeds found throughout the prairie. Regal fritillary caterpillars eat violet leaves and sip nectar from wildflowers when they become adult butterflies. Adult leaf beetles eat plant leaves, and their larvae feed in the ground on juices from roots and stems.

Snails use a tongue-like structure covered with thousands of small teeth to scrape off and eat algae and other aquatic plants.

Certain types of cicadas spend 17 years underground, sucking sap from tree roots before emerging as adults.

Plains pocket gophers have cheek pouches used to carry nesting material and grasses, leaves, small fruits and seeds for food. Gophers turn these pouches inside out for cleaning.



carnivores

As herbivores graze and forage for grasses, seeds and fruits, they must stay alert to the dangers of another consumer in the food chain—the **carnivore**. Carnivores are meat-eaters, and they hunt other animals for food. Carnivores eat herbivores. Carnivores also eat other carnivores.

A carnivorous dragonfly nymph seizes and eats a tadpole, which is an herbivore. A fish swims up and swallows the dragonfly nymph. A northern water snake snaps up the fish, and energy is passed along the food chain.

In the forest, bobcats and great horned owls hunt mice, rabbits and other small mammals. Gray treefrogs cling to tree trunks in search of insects hidden in the bark. Centipedes explore soft tunnels in fallen logs for insects and other small animals. A rough green snake concentrates on swallowing a newly emerged cicada nymph but is caught off guard and swallowed by a hawk.

Prairies are abuzz with insects that are food for hawks, crawfish frogs, skinks, spiders and prairie mound ants. Badgers, hawks and snakes eat rodents, lizards, small birds and snakes.

Water striders walk and eat small insects on water! The surface tension of the pond and the water strider's brush-like leg structures make it possible.

Mole populations rise when there are lots of young cicadas to eat underground.

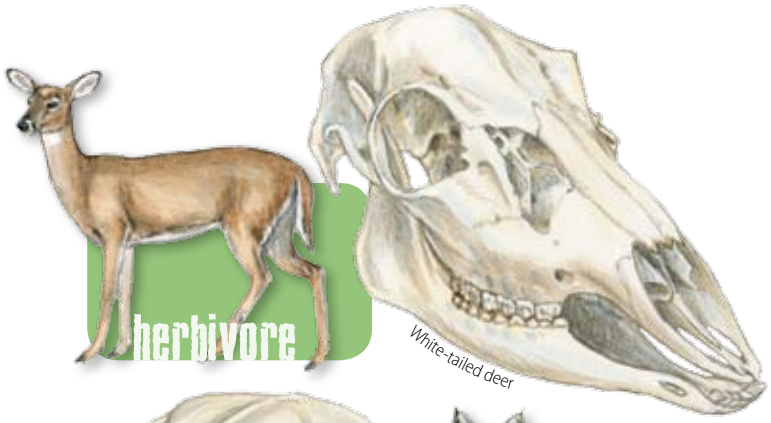
Snakes have small, sharp teeth pointed toward the back of their mouth. They are not used for chewing or tearing but for keeping prey from slipping out as it is slowly drawn in and eaten whole.

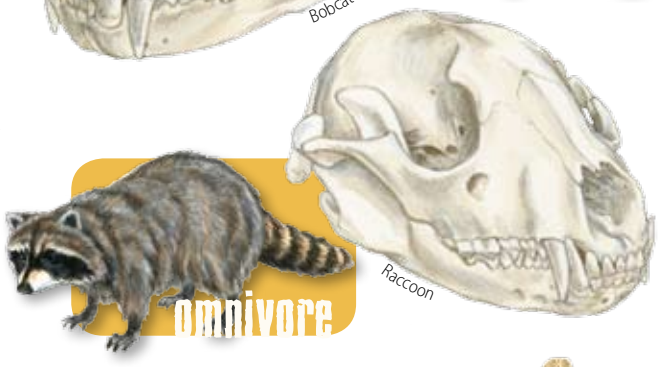
omnivores

Herbivores and carnivores face different challenges when it comes to finding food that fits their plant or meat diets. **Omnivores** are the third type of consumer, and finding food may be less of a challenge for them. Omnivores eat both plants and animals.

Muskrats eat roots and stems of pond plants but occasionally eat mussels, crayfish and frogs. Raccoons eat wild fruits and berries along with fish, frogs, birds and other small animals including muskrats. Channel catfish eat plant material but also eat small fish and insects.

Forests provide wild turkeys with acorns and insects and box turtles with berries, insects and worms. Skunks eat plants, insects and mice. Bobolinks, prairie-chicken adults, prairie mole crickets, grasshopper sparrows and other prairie omnivores eat different plant parts, but they also eat insects and small organisms.





my what big teeth you have!

Teeth are specialized structures.They give clues about what an animal eats. Herbivores have large, sharp front teeth that help them snip off grasses and leaves. Flat, grinding teeth sit back inside their cheeks and help them crush seeds and tough plant parts.

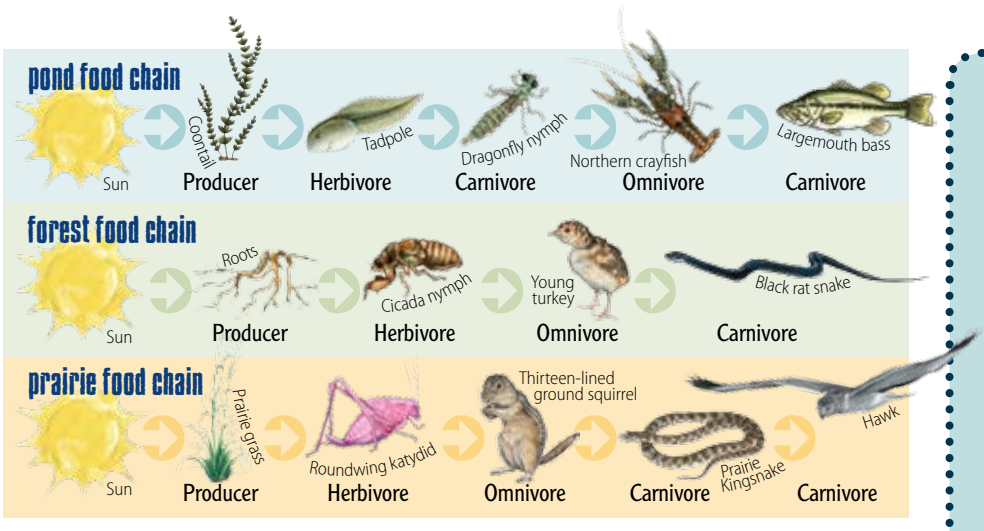
Carnivores need teeth that can tear and rip, as well as grind and chew. Flatter teeth that grind up meat and bones line the sides of their mouths. Carnivores also have long, sharp, pointed teeth on either side of short, sharp front teeth for gripping and tearing food.

Some omnivores have teeth that look like those of herbivores and carnivores. Other omnivores like robins and turkeys have no teeth at all. Instead they have beaks that help them capture insects and eat seeds and fruits.

Fungi are the most important decomposer in a forest ecosystem. By breaking down dead organisms, they provide nutrients that living organisms need to survive.

Centipedes are nocturnal carnivores found in forests under bark, rotting wood or decaying plants.

Morel mushrooms are fungi that grow in greater numbers than usual for 2–3 years following a forest fire.



summary

Animals are classified by the type of food they eat. Plant eaters are herbivores, and meat eaters are carnivores. Animals that eat both plants and meat are omnivores.

Herbivores and carnivores can be identified by looking at their teeth.

Decomposers are organisms that eat dead plants and animals. They digest and break down dead organisms into tiny nutrients which are then returned to the soil. Scavengers also clean up dead and decaying organisms.

nature 's clean-up crew

When plants and animals leave waste behind or die, bacteria, fungi and insects clean up. These special organisms are called **decomposers**. Decomposers eat and break down scat, or animal droppings, and dead plants and animals into tiny parts.

Animals and plants that die or are left half-eaten by other animals in a pond ecosystem are eaten and digested by decomposers such as crayfish and insects. Tiny bacteria and fungi finish the job of decomposition and return the dead plants and animals back into the pond as nutrients.

Old, fallen logs and dead plant matter on a forest floor are alive with sowbugs, carpenter ants, termites, beetles, fungi and bacteria that consume the dead matter and release nutrients back into the soil.These types of decomposers also consume and break down scat as well as dead plants and animals found on prairies. Mushrooms are fungi. Mushrooms are not producers and cannot use the sun's energy to make their own food.They are decomposers that get energy to grow from dead and decaying trees and plants.

Scavengers are animals, such as earthworms and vultures, that keep an ecosystem clean by feeding on dead and decaying organisms.

How do turkey vultures find their meals of dead, decaying animals?

They follow their nose.

Earthworms have five hearts but no eyes, and crawl through moist soil and leaves seeking decaying plant matter.

Turkey vultures circle the skies over prairies and other open spaces sniffing the air in search of dead and decaying animals.